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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/919,689	07/30/2001	Johan Olsson	Pos-maetning	6234

7590 12/24/2003

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EXAMINER	
HAN, YOUNGHUIE JESSICA	
ART UNIT	**PAPER NUMBER**
2838	

DATE MAILED: 12/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Offic Action Summary	Application No.	Applicant(s)	
	09/919,689	OLSSON, JOHAN	
	Examin r	Art Unit	
	Y. J. Han	2838	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) *7-10* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6 and 11-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 July 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

1. Claims 7-10 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected group, there being no allowable generic or linking claim. Applicant's election without traverse is acknowledged.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "means for measuring a temperature-induced change of resistivity of the coil," "means for calculating a temperature compensation factor," and "means for adjusting the control signal by the compensation factor," "means for measuring a temperature-induced change comprises means for determining an average value of voltage over the coil and an average value of current through the coil," and "means for calculating a temperature compensation factor comprises means for calculating the compensation factor as predetermined function of the ratio between the average value of voltage and average value of current" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

3. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: The claimed subject matters "means for measuring a temperature-induced change of resistivity of the coil," "means for calculating a temperature compensation factor," "means for adjusting the control signal by the compensation factor," "means for measuring a temperature-induced change comprises means for determining an average value of voltage over the coil and an average value of current through the coil," and "means for calculating a temperature compensation factor comprises means for calculating the compensation factor as predetermined function of the ratio between the average value of voltage and average value of current" recited in claims 12 and 13 are nowhere to be found in the specification. There are only brief description of "which may then be included in the drive and the measurement circuitry 7" on page 8.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 11, and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Nippert (5,600,237).

Nippert clearly discloses a method and apparatus for measuring the position of an actuator (armature 18) which has a coil (16) that moves relative to a core of a magnet, an

oscillation circuit (solenoid driver 12) having an input corresponding to an instantaneous current flowing through the coil and having an output signal that has a frequency corresponding to the position of the coil relative to the core, and a converter (frequency to voltage (F/V) converter 102) converting the frequency of the measurement output signal into a position output signal indicating the corresponding to the position of the coil relative to the core. In Figure 6 of Nippert, the armature position sensing circuit 10 determines the position of the armature in response to the frequency of the driving signal and the magnitude of the coil current. The solenoid driver 12 is an "on-off" voltage driver having current feedback control whereas the frequency to voltage F/V converter 102 is connected between the solenoid driver 12 and the solenoid 14. The F/V converter 102 measures the frequency of the driving signal and convert the frequency value to a voltage value. Furthermore, the reference discloses a regulator (controller 52 which includes a memory circuit 54) generating a regulator output signal as a function of the difference between an input position set-point signal and the output position signal and generating the control signal as a function of the difference between the regulator output signal and the coil current signal. Specifically, the controller 52 have a memory circuit 53 which has empirically determined data relating to the driving signal frequency, the desired current value, and armature position characteristics. The controller 52 receives a voltage signal representing the driving signal frequency and a signal representing the desired current value. The controller 52 retrieves the stored characteristics from the memory 54 and compares these characteristics to the representative signals to determine the position of the armature 18 with respect to the coil 16. Nippert also discloses that applying hysteresis to the regulator output signal before forming the difference between the regulator output signal and the coil current signal is well known in the art.

See column 5, lines 37-53. It clearly shows that the switching hysteresis controls the voltage applied to the coil thereby reducing the error signal to zero.

Claim Rejections - 35 USC § 103

5. Claims 4-6, 12, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nippert (5,600,237).

Nippert discloses the invention substantially as claimed but does not disclose means for measuring a temperature of the coil, calculating a temperature compensation factor, and adjusting the control signal by the compensation factor. Nippert, however, clearly teaches that "additional measurements and comparisons, e.g. coil temperature and magnetic force, are required to provide accurate indications of armature position." (column 1, lines 64-67) Thus, it would have been obvious to one having ordinary skill in the art to employ the known temperature compensating means in Nippert in order to obtain the claimed invention for the purpose of meeting "stringent demands for absolute position measurement."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Y. J. Han whose telephone number is 703-308-0109. The examiner can normally be reached on Mon-Fri 5:30am-2:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Sherry can be reached on 703-308-1680. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-305-7723 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1782.

Y. J. Han
Primary Examiner
Art Unit 2838